NIAGARA | DISTRICT AIRPORT

gateway to the peninsula

Asset Management Plan

Current Levels of Service

May 6, 2024
Rev 2

advisory services

Prepared by SLBC Inc.

EXECUTIVE SUMMARY

The Purpose of the Plan

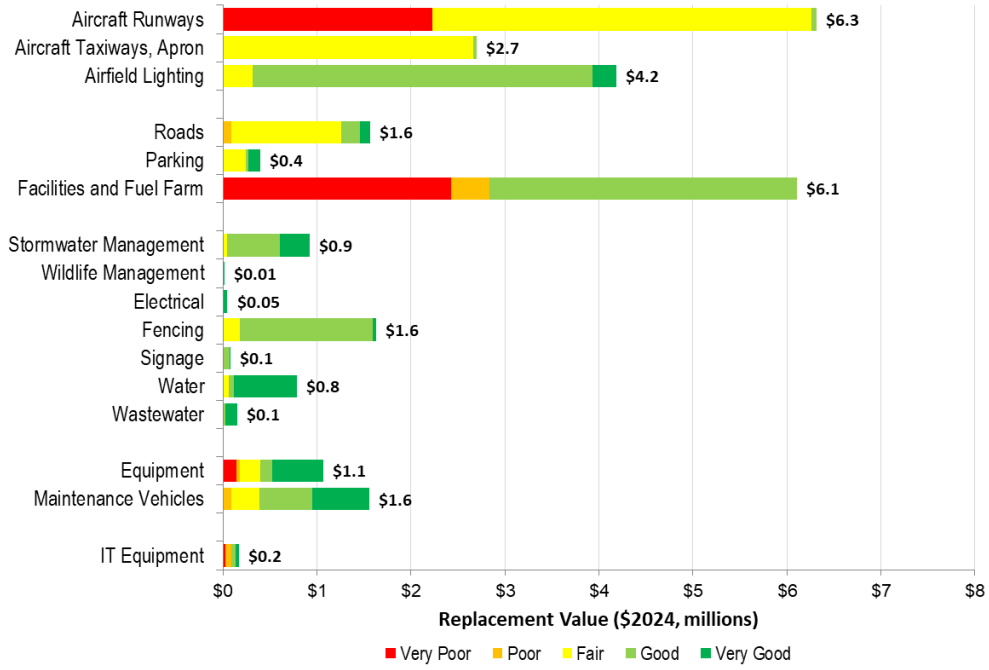
Asset management planning is a comprehensive process that ensures the delivery of infrastructure services in a financially sustainable manner. This Niagara District Airport (the Airport) Asset Management Plan (AM Plan) Current Levels of Service (LOS) provides information about infrastructure assets with actions required to provide an agreed level of service in a cost-effective manner while outlining associated risks. The AM Plan defines the services to be provided, how the services are provided and what funds are required to provide the services over the 10-year planning period. The AM Plan will link to a Long-Term Financial Plan which typically considers a 10-year planning period.

This AM Plan meets the July 2024 requirements of Ontario Regulation (O.Reg.) 588/17 "Asset Management Planning for Municipal Infrastructure" under the Infrastructure for Jobs and Prosperity Act, 2015. Specifically, by July 2024, O.Reg. 588/17 requires municipalities to adopt an AM Plan reporting current LOS for all assets, as well as lifecycle needs to maintain those LOS.

Asset Descriptions

This AM Plan covers the infrastructure assets that provide airside and groundside services, specifically runways, taxiways, aprons and lighting, groundside roads, parking, facilities and fuel farm, site servicing, vehicles and equipment and information technology equipment. The overall condition and replacement value of assets that support the service delivery included in this AM Plan are shown in Figure ES-1. The total estimated replacement value of the assets is **$27.7 million** expressed in current (2024) dollars.

Figure ES-1: Condition Distribution of Airport Assets



Eighty percent (80.1% or $22.2 million) of the Airport's assets are in Fair condition or better. Two and a half percent (2.5% or $0.7 million) are in Poor condition, which indicates that they are nearing the end of their service life. Seventeen and a half percent (17.5% or $4.8 million) are in Very Poor condition, which means they are due or overdue for replacement. Assets in Very Poor condition consist of Runway 11-29, Hangar 11, a front-end loader, a snowblower, handheld radios and various IT devices. Runway 11-29 has an estimated replacement value of $2.2 million and is currently closed. Hangar 11 has an estimated replacement value of $2.4 million and is nearing the end of its lease period to Genaire Limited.

Levels of Service

Service levels are categorized by the following service attributes:

- **Capacity:** Services have enough capacity and are accessible enough to everyone
- **Function:** Services meet customer needs while limiting health, safety, security, natural, and heritage impacts
- **Reliability and Quality:** Services are continuous, predictable, and responsive to customers
- **Affordability:** Services are affordable and provided at the lowest cost for both current and future customers

O.Reg. 588/17 Asset Management Planning for Municipal Infrastructure requires reporting of current levels of service.

The current performance related to capacity and function are not provided in this AM Plan as an 2024 Airside Redevelopment Study is currently under development that will define the demand for expanded services, as well as the required capacity and assets to support those services.

The reliability service attribute indicates whether assets are fit for service. The Technical LOS measures the percent of assets in renewal backlog, i.e. due or overdue for replacement. As shown in Table ES-1, 17% of the Airport's assets are in renewal backlog. These assets correspond to the assets identified as being in Very Poor condition, including Runway 11-29, Hangar 11, a front-end loader, a snowblower and some IT equipment.

Table ES-1: Current Performance – Reliability

Customer LOS Statement	Technical LOS Indicator	Current Performance	Comment
Assets are fit for service	% assets in renewal backlog, i.e. due or overdue for replacement	**17.5%**	Less is better

The O.Reg. requires the organization to forecast the cost of maintaining the current performance over the next 10 years, in othder words, to prevent the renewal backlog from growing.

The affordability service attribute will be addressed in the Financial Summary of the AM Plan.

Lifecycle Management Plan

The projected outlays necessary to maintain the current renewal LOS is $10 million over the next 10 years or approximately $1.0 million/year. The approximate timing of those needs is shown in Figure ES-2. The spike in needs in 2029 represents the need to renew Hangar 11. The spike in

2033 consists primarily of Runway 06-24, a plow truck and a loader, while the spike in 2034 consists primarily of Taxiway A, the terminal apron and the flying club apron.

Figure ES-2 Renewal Needs and Funding – Maintain Current LOS Scenario

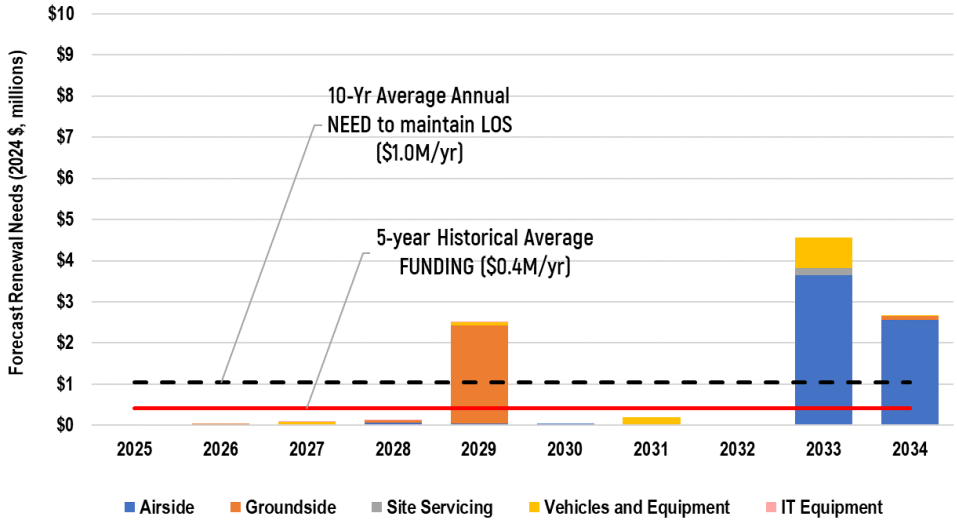
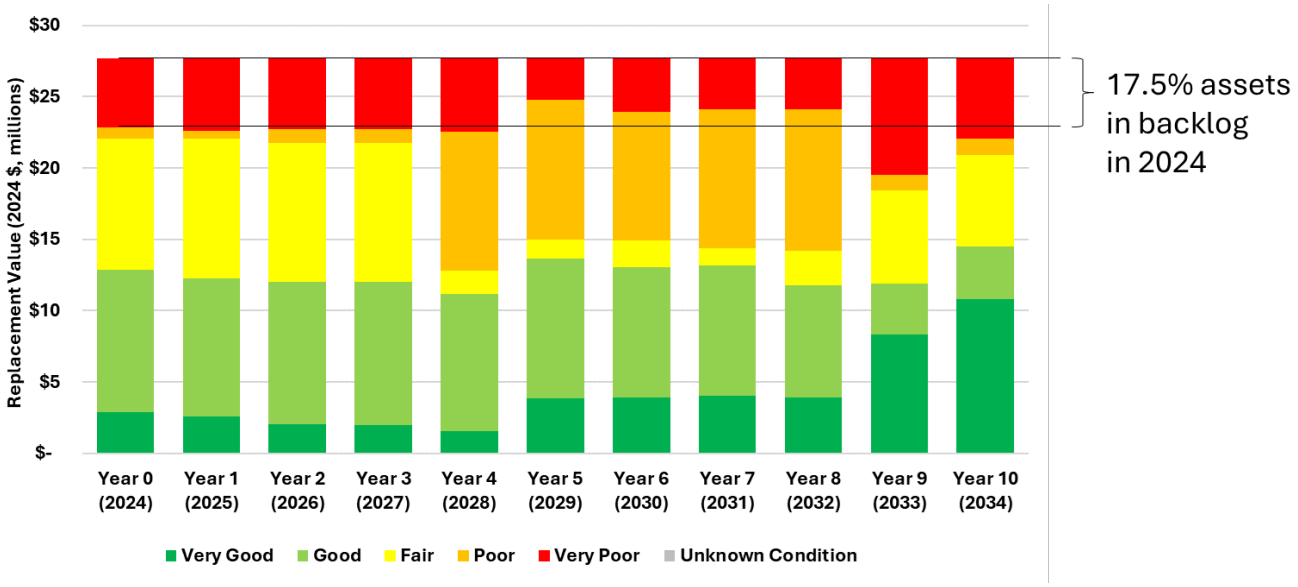


Figure ES-3 shows the forecast condition distribution associated with the funding scenario depicted in Figure ES-2. This scenario was designed to maintain the current LOS, i.e. the renewal backlog. In 2024 the renewal backlog was 17.5%. The backlog grows to 20.3% by 2034; however, through the period 2025-2034; the annual renewal backlog averages 17.3%.

Figure ES-3 Condition Forecast – Maintain Current LOS Scenario



For reference, Figure ES-2 shows that the average capital renewal funding over the past 5 years (2020-2024) was $0.4 million/year, which is $0.6 million/year less than the amount required to maintain the current LOS. As such, continuing to fund at an average of $0.4 million/year would

result growth of the renewal backlog, meaning that more and more assets would fall into Very Poor condition.

To eliminate the renewal backlog over the next 10 years, an estimated $1.6 million/year would be needed, which is $1.2 million/year more than the historical average renewal funding provided.

For operations and maintenance of the current asset portfolio, an estimated $0.6 million/year is needed. This amount focuses on costs associated with operations and maintenance of assets, and does not include the costs of other airport programs and services.

The Airport is currently exploring growth options in its 2024 Airside Redevelopment Study. The cost of the growth needs will be incorporated into the 2025 AM Plan

Financial Summary

Table ES-2 compares the historical funding with forecast needs for each lifecycle stage. The table shows that to maintain the current LOS there is a renewal gap of $0.6 million/year and historical funding levels would cover only 40% of the needs.

The Table also shows that average annual costs for operating and maintaining the airport assets is estimated at $697k/year, based on average annual expenditures over the past three years (2021-2023) inflated to 2024 $. The anticipated annual funding for operations and maintenance is $600k/year based on 2024 budget amounts, including only costs related to operations and maintenance of assets (not full operating budget). This represents funding that covers 86% of estimated needs, leaving a gap of about $97k/year.

Table ES-2 Comparison of Historical Funding and Forecast Needs

Lifecycle Stage	Anticipated Funding Amount (2024 $/year, millions)	Forecast Need 2025-2034 (2024 $/year, millions)	Gap (2024 $/year, millions)	% Funding / Needs
Growth & Upgrade	N/A	To be defined in 2024 Airside Redevelopment Study	N/A	N/A
Renewal (to maintain current LOS)	$0.4*	$1.0	$0.6	40%
Operations & Maintenance	$0.6**	$0.7***	$0.1	86%

* Average annual renewal funding 2020-2024

** Based on 2024 budget, including only costs related to operations and maintenance of assets, not full operating budget.

*** Based on average expenditures for asset operations and maintenance over years 2021-2023.

To close the funding gap, the Airport may either increase revenues or lower expenditures. Revenues may be increased through increases in user fees, contributions from municipalities or grants. Expenditures may be lowered by reducing service levels, eliminating assets or deferring

renewals, beginning with the lowest criticality assets. The Airport is not permitted to fund using debt or to hold reserves.

There are risks associated with providing the service and not being able to complete all identified asset lifecycle activities needed. We have identified major risks as:

- Deferral of renewal activities which results in reduced whole of life of the infrastrure, higher annual cost over the life of the asset, assets in worse overall condition and associated risk of sub-par performance, and less effective use of resources.

It is recommended that the Airport will endeavour to manage these risks within available funding by:

- Prioritizing needed activities by risk impact rating and lower cost renewal methods
- Continuing to identify and request funding and staffing incrementally over time to maintain the current levels of service.

Asset Management Practices

The data confidence is assessed as medium confidence level for data used in the preparation of this AM Plan.

To improve asset management practices, we will undertake the following next steps:

- Determine proposed (i.e., target) levels of service for reporting in the Proposed LOS AM Plan required by O.Reg. 588/17 for approval by July 1, 2025.
- Complete the 2024 Airside Redevelopment Study and associated business case and determine Growth and Upgrade Needs Forecasts, including the future use and lifecycle activities for Hangar 11.
- Improve the asset State of Infrastructure database by conducting cyclical industry standard condition assessments, giving priority to high consequence of failure (CoF) assets. In particular, conduct condition assessments on the Terminal and Maintenance Garage. Develop inventories of building systems and components as part of the condition assessment.
- Establish a master asset inventory to support AM activities. Align the TCA register with AM asset register, or consolidate the two inventories. Establish processes to update the asset register(s) when assets are acquired, replaced or eliminated.
- Explore options for implementing technologies for work order management and asset investment planning. Consider the possibility of using applications in place at one of the three owner municipalities.

Monitoring and Improvement Program

O.Reg. 588/17 requires that AM Plans be updated by July 1, 2025 to report proposed LOS for the subsequent 10 years, along with the cost of sustaining the proposed LOS. Thereafter, the O.Reg. requires that progress implementing the AM Plan be reported to municipal Councils annually by July 1. In addition, the O.Reg. requires AM Plans to be updated at least every 5 years.

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List of Abbreviations

Abbreviation	Definition
AM	Asset Management
BCA	Building Condition Assessments
CEO	Chief Executive Officer
CoF	Consequence of Failure
CPI	Consumer Price Index
CRV	Current Replacement Value
ISO 31000	International Organization for Standardization Risk Management Process
LOS	Levels of Service
NRBCPI	Non-Residential Building Construction Price Indices
O.Reg.	Ontario Regulation
TCA	Tangible Capital Asset

1 INTRODUCTION

1.1 Background

The Niagara District Airport (the Airport) is a municipal airport located within the Niagara-on-the-Lake boundaries and financially supported by its three surrounding municipalities – the cities of Niagara Falls and St. Catharines, and the town of Niagara-on-the-Lake.

The Niagara District Airport Commission manages the Airport on behalf of the three municipalities. The Commission is comprised of nine individuals – three elected councilors representing each of the three municipalities and six individuals nominated by the municipalities – all serving as commissioners for a four-year term.

The Airport encompasses an area of 130 hectares (321 acres) in which several areas have been designated for airside and groundside development. The Airport has a 5,000-foot runway, 24-hour Customs clearance, NAV CANADA on site, and Avgas and Jet Fuel refueling available. Approximately 75 aircraft are based on the Airport. On-site services include executive and personal charter, helicopter and fixed wing sightseeing, expert airport maintenance operations, and an active flight training school, and several interesting vintage aircraft.

This Asset Management Plan (AM Plan) communicates the requirements for the sustainable delivery of services through management of assets, compliance with regulatory requirements, and the required funding to maintain current levels of service over a planning period of 10 years.

1.2 Alignment with Regulatory Requirements

This 2024 Current Levels of Service (LOS) AM Plan meets the requirements of Ontario Regulation (O.Reg.) 588/17 “Asset Management Planning for Municipal Infrastructure” under the Infrastructure for Jobs and Prosperity Act, 2015. Specifically, by July 2024, O.Reg. 588/17 requires municipalities to adopt an AM Plan reporting current LOS for all assets, as well as lifecycle needs to maintain those LOS.

In accordance with the requirements of O.Reg. 588/17, this AM Plan is posted on the Airport’s website, along with related background documents, such as condition assessments.

1.3 Relationship with Other Documents

Asset management planning is a medium- to long-term planning activity that relies on input from strategic planning activities and informs shorter-term decision making. The AM Plan provides a framework to validate the Airport’s budgeting processes and assist in prioritizing work activities, including capital projects, based on risk. It also discusses LOS that support goals in the Airport’s strategic plan and lifecycle management strategies intended to reduce the overall cost of asset ownership.

The AM Plan is intended to be read with other Airport and supporting municipalities’ policies and planning documents, including the following:

- Corporate Asset Management Policies of the City of Niagara Falls, the City of St. Catharines and the Town of Niagara-on-the-Lake
- Tangible Capital Asset (TCA) Annual Financial Statements

- Feasibility Study and Business Case (2020): Examines potential business opportunities to position the Airport as a stronger economic asset to the region, and the necessary investments and developments to achieve those future business goals.
- Niagara District Airport Master Plan – Draft (2021): Developed by Niagara Region. It outlines the strategic goals related to future business objectives and short-term infrastructure improvements at the airport. It is still in draft form, and has not yet been formally adopted by the Airport's governing Commission.
- Niagara District Airport – 2023 Budget Presentation
- Niagara District Airport – 2023 Capital Budget
- Niagara District Airport – 2023 Operating Budget.

1.4 Key Stakeholders

Key stakeholders in the preparation and implementation of this AM Plan are shown in Table 1-1 below.

Table 1-1 Key Stakeholders in the AM Plan

Key Stakeholder	Role in Asset Management Plan
Niagara District Airport Commission	The Commission is comprised of 9 members, 3 of which are elected Councillors from each of the 3 owner municipalities, and the other 6 being appointed members representing the municipalities. The Commission provides executive leadership and strategic direction for the Airport's operation, management, and future business development goals. It is responsible for communication and liaison between the Councils of the three owner municipalities and the Airport's administration staff. Overall owners of the Airport's assets. Approves asset management policies and asset funding allocation through the annual budget process. An overarching expectation of a standard of care is required by the Commisison to ensure commitment to effective asset management practices.
Elected Councils for the Cities of Niagara Falls and St. Catherines, and the Town of Niagara-on-the-Lake	These municipalities are joint owners of the Airport's assets. Councils approve funding allocation to be used by the Airport Governing Commission, proportional to their share of ownership of the Airport, through the annual corporate budget process.
Airport Chief Executive Officer (CEO)	Under the leadership of the Niagara District Airport Commission, the CEO Provides leadership, strategic direction and corporate oversight to ensure that the goals and directions of the asset management program remain consistent with the overall strategic plan. Provides information needed by the Commission for strategic business decisions, such as long-range forecasts of asset investment needs, services levels, risks, costs, and performance measures.
Airport Manager of Airside and Groundside Services	The Manager of Airside and Groundside Services supports the CEO in implementing the asset management decisions, inluding capital improvements, and operations and maintenance activities, as well as improvements to asset management pratices. The Manager also oversees the safe, compliant, and efficient operation of the airport.
Airport Manager of Finance and Administration	Provides historic Tangible Capital Asset (TCA) amounts, and historic and current capital and operating budgets. Further, provides coordination on input data and development of the AM Plan.

1.5 Goals and Objectives of Asset Ownership

The Airport exists to provide services. Some of these services are provided by infrastructure assets. The Airport has acquired infrastructure assets by purchase, by contract, construction by staff, and by donation of assets constructed by others to meet increased levels of service.

The Airport's goal in managing infrastructure assets is to meet the defined level of service (as amended from time to time) in the most cost effective manner for present and future customers.

The key elements of infrastructure asset management are:

- Providing a defined level of service and monitoring performance
- Managing the impact of growth through demand management and infrastructure investment
- Taking a lifecycle approach to developing cost-effective management strategies for the long-term that meet the defined level of service
- Identifying, assessing and appropriately controlling risks
- Linking to a long-term financial plan which identifies required, affordable expenditure and how it will be financed.

Key elements of the planning framework are:

- **Levels of service:** specifies the services and levels of service to be provided
- **Future demand:** how this will impact on future service delivery and how this is to be met
- **Lifecycle management:** how to manage existing and future assets to provide defined levels of service
- **Financial management:** what funds are required to provide the defined services
- **Asset management practices:** how to manage provision of the services
- **Monitoring and improvement plan:** how the AM Plan will be monitored to ensure objectives are met, including how to increase asset management practice maturity.

1.6 Organization of Document

The contents of this AM Plan follow the recommended elements of a detailed AM Plan:

- **Introduction:** Outlines scope, background information, relationship to other documents and plans, and applicable legislation
- **State of Infrastructure:** Summarizes the inventory, valuation, age and remaining life, and condition of the assets in the inventory by asset class
- **Levels of Service:** Defines levels of service through performance indicators and targets, and outlines current performance
- **Lifecycle Management Strategy:** Defines the framework for identifying critical assets and quantifying risk to enable prioritization of lifecycle activities, and summarizes the asset management strategies (i.e., planned actions) that will enable the assets to maintain the current levels of service in a sustainable way, while managing risk, at the lowest lifecycle cost
- **Financial Management Strategy:** Summarizes the infrastructure gap based on the determined infrastructure needs and associated budget
- **AM Plan Improvement and Monitoring:** Summarizes the next steps including improving future iterations of the AM Plan and monitoring of AM Plan implementation progress.

2 STATE OF INFRASTRUCTURE

The State of Infrastructure section of the AM Plan describes the Airport's asset inventory, and provides a snapshot in time of the valuation, age and condition of the assets. Recommendations for the sustainment of data collection and reporting are provided in the AM Plan Improvement and Monitoring section.

2.1 Asset Hierarchy and Inventory

Understanding the assets owned by the Airport that are used to support each major service area is important to enable their effective and efficient management. In this AM Plan, the Airport's asset inventory has been organized around the major service groups and asset classes shown in Table 2-1 in the following sub-section.

Most infrastructure assets owned by the Airport are included. Land is not included in the current replacement costs of the asset inventory. As inputs into decision-making, data and information are important assets, but are not currently included in this AM Plan.

2.2 Asset Valuation

Financial accounting valuation uses historical costs and depreciation assumptions to determine the book value of capital assets in accordance with the Public Sector Accounting Board (PSAB). Policies and procedures relating to the development of net book values for accounting purposes have been developed by the Airport to comply with PSAB 3150 Tangible Capital Assets (TCA) reporting.

While financial accounting valuations are based on historical costs, managerial valuations are based on replacement costs. For most asset types, the replacement values were calculated using historical purchase costs indexed to December 31, 2023 using the Non-Residential Building Construction Price Indices (NRBCPI) or Consumer Price Index (CPI), as appropriate for the asset type. For some asset types, replacement values are based on current unit costs. The replacement cost valuation represents the estimated cost to replace assets today and is presented in current (2024) dollars and does not account for future technology improvements but does account for increased regulatory requirements and technology improvements to date.

The estimated current replacement value of Airport assets is **$27.7** million presented in current (2024) dollars, as outlined in the following table.

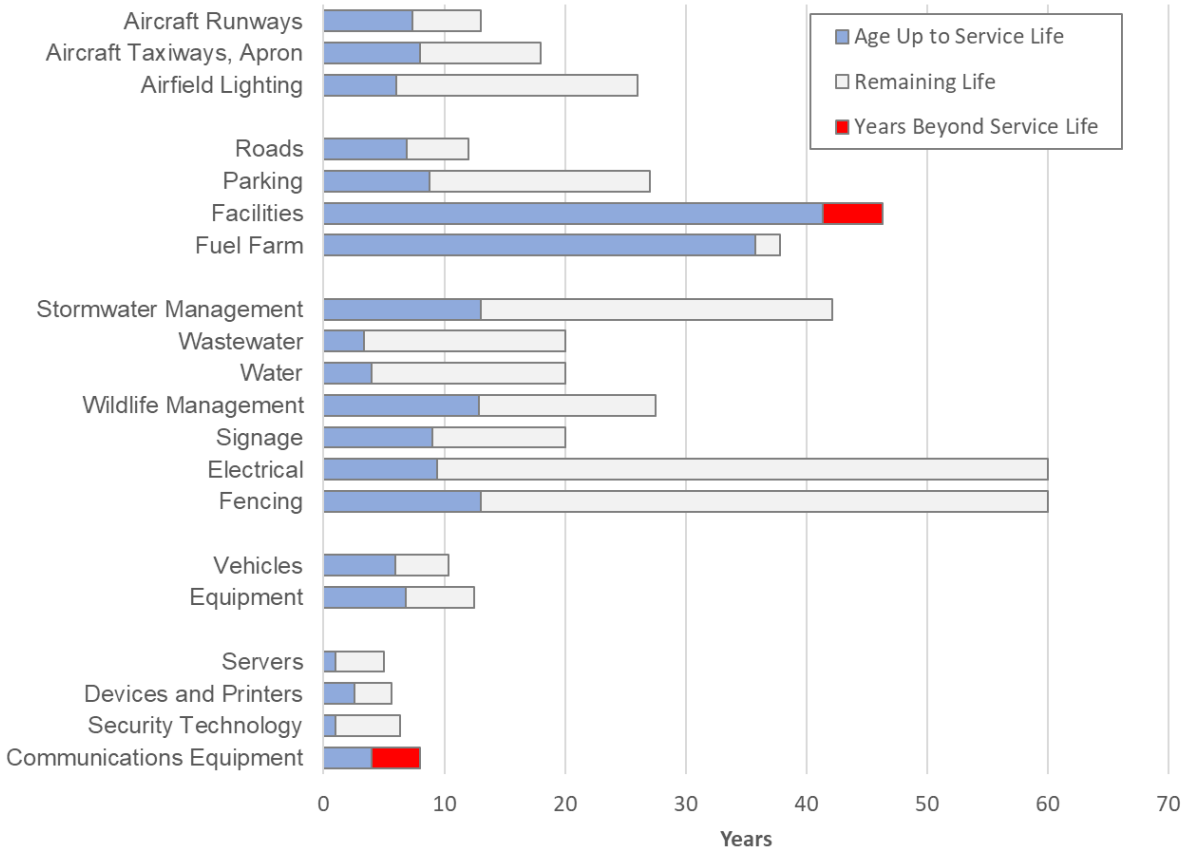
Table 2-1 Assets covered by this AM Plan

Asset Class	Asset Sub-Class	Replacement Value	
		2024$M	%
Airside	Aircraft Runways	$6.32	22.8%
	Aircraft Taxiways, Apron	$2.70	9.8%
	Airfield Lighting	$4.18	15.1%
Groundside	Roads	$1.56	5.6%
	Parking	$0.40	1.4%
	Facilities	$6.06	21.9%
	Fuel Farm	$0.04	0.2%
Site Servicing	Stormwater Management	$0.92	3.3%
	Water	$0.79	2.8%
	Wastewater	$0.15	0.5%
	Wildlife Management	$0.01	0.0%
	Signage	$0.08	0.3%
	Electrical	$0.05	0.2%
	Fencing	$1.63	5.9%
Vehicles and Equipment	Vehicles	$1.56	5.6%
	Equipment	$1.07	3.9%
IT Equipment	Servers	$0.03	0.1%
	Devices and Printers	$0.04	0.2%
	Security Technology	$0.03	0.1%
	Communication Equipment	$0.06	0.2%
TOTALS		**$27.69**	**100.0%**

2.3 Asset Age and Remaining Life

Understanding the estimated life of an asset and the proportion of life that remains provides an insight into potential risk of asset failure and potential renewal need. The following graph shows, for each asset sub-class, the average age of the assets against the average estimated useful life, in years. Averages are “weighted” by replacement cost to give more importance to asset types with more value. Although many of the Airport’s assets are relatively new, many others are reaching the middle to latter stages of their useful lives and will require rehabilitation or replacement in the upcoming years. The assets that are beyond service life are the Hangar 11 facility and some IT equipment assets (security software and handheld radios).

Figure 2-1 Asset Life Consumed Profile



2.4 Asset Condition

In this AM Plan, the term “condition” refers to the degree of physical deterioration of an asset. “Performance” is a more general term that typically describes an asset’s ability to achieve levels of service through measures such as capacity, function and operational quality.

Condition assessment programs evaluate current physical condition, determine rate of deterioration over time, enable forecasts of future condition, and inform the most beneficial type and timing of treatment. Condition assessment methods and rating systems have become relatively standard for some assets but vary depending on the type of asset. The Airport conducts inspections more frequently on more critical assets such as airside pavement and facilities, while condition assessments are undertaken for less critical assets such as groundside parking lots, signage and vehicles at an appropriate frequency for the asset group. Some Airport assets have no reported physical condition. These include assets which the Airport is in the process of collecting the data, assets where the renewal decision is not based on condition (e.g. age or mileage), and assets that are run-to-failure.

For those assets with no condition data, age-based condition is estimated as the percentage of age to useful life. Using age data as a surrogate for condition data is common but it can be misleading as age does not always directly reflect condition or remaining life. The Airport is working to increase the percentage of assets with industry standard condition assessment data

for facilities through building condition assessments (BCAs) and pavement condition assessments.

The Airport undertook a Airfield Pavement Structural Assessment in 2024 which included determination of whether the structural capacity of the airside pavement can accommodate the traffic anticipated over the next 20-year period. The assessment will provide an overall condition grade for the airside pavement, and types, severity and density of distresses, pavement structure layer thicknesses and material types, and asphalt moduli. The overall condition grade from the draft results of the Airfield Pavement Structural Assessment were used in this AM Plan.

To enable comparison of condition and condition trends over time between different asset types, a generic condition grading scale is often used to translate detailed engineering data about assets into information that can be compared across asset groups. For this purpose, the Airport uses a five-point condition grading system, summarized in the table below, which is consistent with the general condition grading system included in the International Infrastructure Management Manual (IIMM).

Table 2-2 Five-Point Condition Grading System

Grade	Description	Condition Criteria	Criteria Description
VG	Very Good	Fit for the future	Well maintained, good condition, new or recently rehabilitated
G	Good	Adequate for now	Acceptable, generally approaching mid-stage of expected service life
F	Fair	Requires attentions	Signs of deterioration, some elements exhibit deficiencies
P	Poor	Increasing potential of affecting service	Approaching end of service life, below standard, significant deterioration
VP	Very Poor	Unfit for sustained service	Near or past service life, advanced deterioration, assets may be unusable

Details relating to the condition of each asset are currently maintained in various databases and spreadsheets. The Airport converts industry standard condition rating systems and age-based assets to the above condition grading system as provided in the table below.

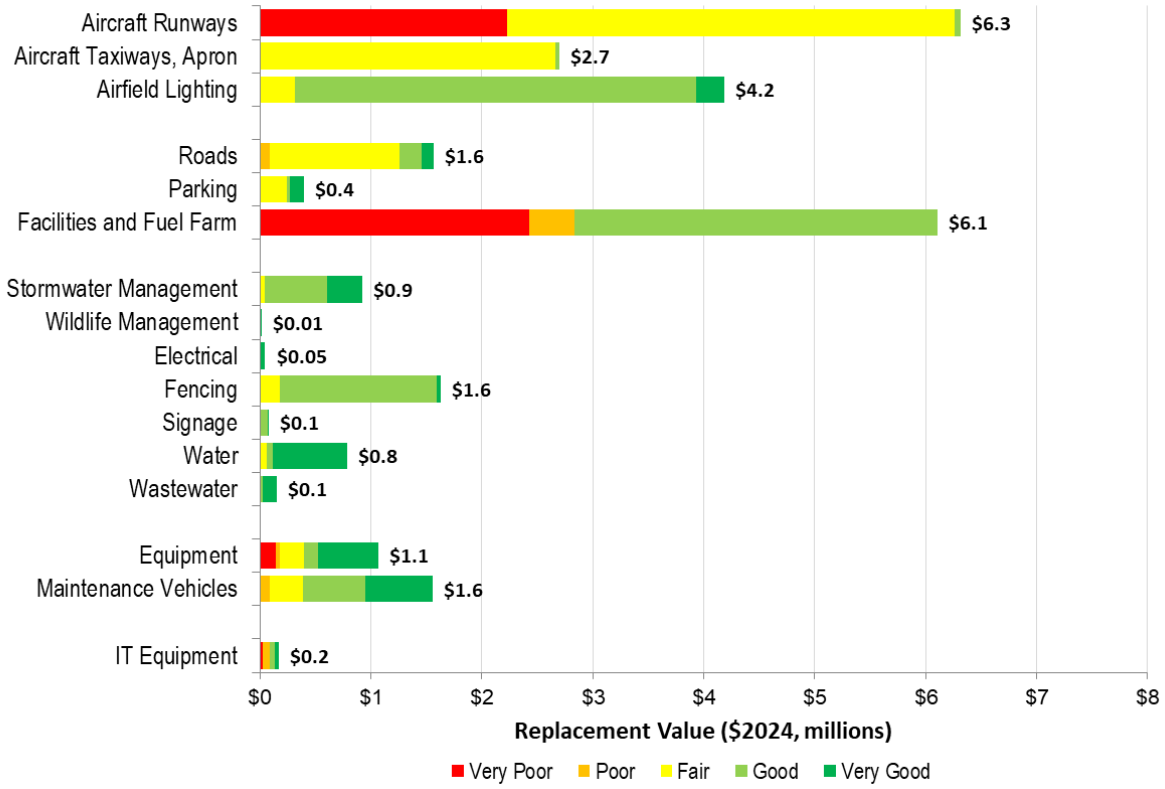
Table 2-3 Conversion of Industry Condition to Five-Point Condition Grade

Condition Grade	% Life Remaining for Age-Based "Condition"	Airside Pavement Condition Grade
Very Good (New)	75 to 100%	Very Good
Good	50 to 75%	Good
Fair	25 to 50%	Fair
Poor	0 to 25%	Poor
Very Poor (End-Of-Life)	<= 0%	Very Poor

The following graph depicts, by colour, the value of assets that fall within each of the condition grades (very good or new, good, fair, poor, very poor), organized by asset sub-class. The total

replacement value of assets within each asset sub-class is shown to the right of the condition grade bar.

Figure 2-2 Asset Condition Grade Profile



To adequately meet service levels and manage risk while minimizing lifecycle costs, most assets should generally be preserved in fair or better condition. The above figure shows that the majority of the Airport's assets – in fact **80.1%** – are in fair or better condition. A total of **2.5%** of assets are in poor condition and **17.5%** of assets are in very poor condition. Assets in poor or very poor condition require increased attention and renewal investment (i.e., funding and staff resources) to avoid increased maintenance costs and/or unexpected failure. The majority of assets that are currently in very poor condition are aircraft runway 11-29 which is closed to traffic and the Hangar 11 facility which is under review as it is in very poor condition and not functional as a hanger as it does not have airside access. Assets in poor and very poor condition would typically be included in 10-year capital renewal program and budget forecast.

2.5 Confidence of Data

The Airport has well-developed policies, procedures and guidelines for sustainability of Tangible Capital Asset (TCA) information. The information that supports this AM Plan is also continuously updated. The Airport intends to update this AM Plan every five years, as required by O.Reg. 588/17, Asset Management Planning for Municipal Infrastructure, or more frequently as needed.

The Airport's asset management program is always developing and implementing standards to improve the quality and consistency of information captured. Section 6 of this AM Plan provides a summary of the confidence in the data used to develop this AM Plan and an improvement and monitoring plan.

3 LEVELS OF SERVICE

3.1 Overview

One of the basic principles of sound asset management practice is to describe the levels of service the current and future community want and are prepared to pay for, and the associated lowest cost to deliver those levels of service. Performance management is the systematic and cyclical process of identifying objectives, collating information regarding the achievement of those objectives, reporting the information in a meaningful way, and using the information to improve delivery of services to the community.

Monitoring the Airport's performance against defined levels of service helps to improve the Airport's service delivery by focusing program activities and assets on priorities, and identifying under-performance so that it can be addressed. Performance measures or indicators are used for this purpose.

GOOD PERFORMANCE MANAGEMENT

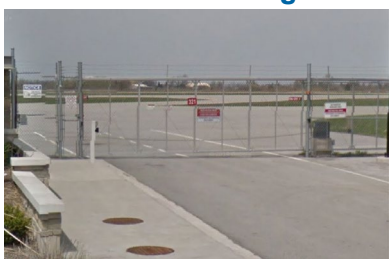
Helps the Airport to

- improve service delivery
- demonstrate affordability
- provide accountability to the community

3.2 Current Services and Programs

The Airport provides the following scope of services to the community that are included in the AM Plan:

Asset Class	Asset Types
Airside 	• **Airside assets** include the main runways, taxiways, aprons, and airfield lighting which are necessary for aircraft to complete safe departures and arrivals from the Airport.
Groundside 	• **Groundside assets** include the supporting infrastructure which ensure the airport remains easily accessible for staff and visitors, such as roads and parking lots. Groundside also includes the fuel farm and buildings/facilities such as the hangar and maintenance garage, which enable the safe and efficient operation and maintenance of aircraft.

Asset Class	Asset Types
Site Servicing 	• **Site servicing assets** provide essential services such as stormwater management, wildlife management, electrical service, fencing, signage, water service, and wastewater service. The objective of site servicing is to prevent flooding, provide security of the airfield, and provide other services.
Vehicles and Equipment 	• **Vehicles and equipment** owned by the Airport allow operations staff to perform necessary maintenance tasks to airside, groundside, and site servicing assets, and include: – **Vehicles** such as tractors, pick-up trucks, runway sweepers, and other vehicles – **Field equipment** such as snowblowers, line painters, decelerometers, and de-icing spreaders.
IT Equipment 	• IT equipment includes the Airport's servers, communications devices and equipment, security system such as cameras and security software, as well as laptops and printers.

3.3 Legislative Requirements

There are many legislative requirements relating to the management of assets. Legislative requirements that impact the delivery of Airport services are outlined in **Table 3-1**.

Table 3-1 Legislative Requirements

Legislation	Requirement
Municipal Act, 2001	The main statute governing the creation, administration and government of municipalities in Ontario, other than the City of Toronto.
Ontario Regulation 588/17 The Infrastructure for Jobs and Prosperity Act, 2015	Sets out the principles for the provincial government to regulate asset management planning for municipalities.
Accessibility for Ontarians with Disabilities Act (AODA)	Develops, implements, and enforces accessibility standards to achieve accessibility for Ontarians with disabilities with respect to goods, services, facilities, accommodation, employment, buildings, structures, and premises on or before January 1, 2025.
Public Section Accounting Board Standard 3150	Standards on how to account for and report on tangible capital assets in government financial statements.
Canadian Aviation Regulations (CARs)	A compilation of regulatory requirements designed to enhance the safety and competitiveness of the Canadian aviation industry. They correspond to areas of aviation which Transport Canada, Civil Aviation is mandated to regulate (personnel licensing, airworthiness, commercial air services, etc.).
TP312 Aerodrome Standards and Recommended Practices	These standards complement subpart 302 of the Canadian Aviation Regulations (CARs). They set out requirements such as: physical characteristics; obstacle limitation surfaces; visual aids; and some technical services the aerodrome operator at a certified land aerodrome (airport) provides to support aircraft operations.
TP1247 Aviation - Land Use in the Vicinity of Aerodromes	Describes the operational characteristics of aerodromes and the different types of land uses outside the aerodrome property boundary and recommends, where applicable, guidelines for those land uses in the vicinity of aerodromes. Includes links to source documents to further explain the technical aeronautical requirements.
Airport Wildlife Management Bulletin - TP 8240 - No. 38	The airport bird-hazard risk analysis process complements the provisions of TP 1247 with Transport Canada's airport bird-hazard risk analysis process (ABRAP)
ICAO Annex 14 Aerodromes Design and Operations	Provides a series of design criteria for efficiently proportioned aerodromes. Prescribe the physical characteristics and obstacle limitation surfaces to be provided for at aerodromes, and certain facilities and technical services normally provided at an aerodrome.
Highway Traffic Act R.R.O. 1990 Reg. 615: Signs	Sets out the standard for the erection and maintenance of signs.
Highway Traffic Act R.R.O. 1990	Sets out fleet and equipment inspection requirements Reg. 174/22: Classes of Vehicles Requiring Annual and Semi-Annual Inspections Reg. 611: Safety Inspections Reg. 199/07: Commercial Motor Vehicle Inspections Reg. 587: Equipment
Technical Standards and Safety Act, 2000	Sets out the technical standards and safety regulations to enhance public safety by providing for the efficient and flexible administration of various industries or equipment.

Legislation	Requirement
Ontario Building Code Act, 1992	The legislative framework governing the construction, renovation and change-of-use of a building in Ontario. The Ontario Building Code, a regulation under the Act, establishes detailed technical and administrative requirements and minimum standards for building construction in public health and safety, fire protection, structual sufficienty, construction materials, plumbing and mechanical systems.

Legislated Community Levels of Service

Legislated requirements define the standards according to which the Airport is legally obligated to provide services to the community. The Airport delivers services in adherence to applicable legislative requirements, including required compliance monitoring and reporting. Many legislated levels of services relate to service and asset safety and reliability. Information on regulatory inspections is contained within various databases and maintained by Airport staff at the operational level to ensure legislative compliance. It is typical that details of compliance be held at the operational level, but that reporting that confirms that the Airport complies is reported at a higher level.

3.4 Corporate Vision, Mission and Values

The Niagara District Airport Commission's 2023-2026 Strategic Plan defines the organization's vision, mission and values as follows:

Vision

To become an indispensable aviation gateway.

Mission

To provide an elevated airport experience for customers and community.

Values

Safety. Efficiency. Integrity. Customer-Focused. Teamwork.

The Strategic Plan identifies the following Planning Goals for 2024 – 2026:

Secure Partners for Growth

- Obtain funding to engage in airside development
- Attract scheduled & charter passenger services

The Strategic Plan priorities are as follows:

Advocacy

- Secure Funding
- Develop Advocacy Strategy and Advance Business Case for Growth

Alignment

- Alignment with Municipal Partners
- Secure Stakeholder Support for the Business case
- Community Engagement

Analytics

- Capture Enhanced Demographic Data
- Publish a Comprehensive and Compelling Business Case

The Asset

- Create Conditions for Growth
- Explore Growth Opportunities within Current Capacity
- Evaluate Current Infrastructure Capabilities vs. Future Needs

3.5 Customer and Technical Levels of Service

Customer LOS measure how the customer receives the service and whether value to the customer is provided. Figure 3-1 shows that Corporate LOS commitments and the legislated LOS referenced by them drive the definition of more specific Customer (also known as Community) LOS, which can be categorized as relating to one of the following service attributes:

- **Capacity:** Statements that reflect whether the service and supporting assets are of sufficient capacity to meet user demand.
  - Does the Airport need more or less of these services and assets?
- **Function:** Statements that reflect the suitability of the services, operations and assets for the user or other stakeholder.
  - Do they meet the needs of the community?
  - Do they meet regulatory requirements including those for health and safety, environmental protection and barrier free access?
  - Do they support the Airport's strategic priorities?
- **Reliability & Quality:** Statements that reflect whether services and supporting assets are reliable, available when needed, and responsive to customers.
  - Are assets maintained and renewed to ensure a state of good repair (i.e., condition)?
  - Are services continuous?
  - Is the community involved in planning, treated respectfully and responded to promptly?
- **Affordable:** Statements that reflect whether services and supporting assets are adquately funded in both the short and long term.

Technical LOS measures support the customer LOS statements. They relate to the allocation of resources to service activities to best achieve the desired customer outcomes and demonstrate effective performance.

Customer LOS are translated into Technical LOS, where:

- **Capacity LOS** drive assessment of expansion needs
- **Function LOS** drive assessment of upgrade needs

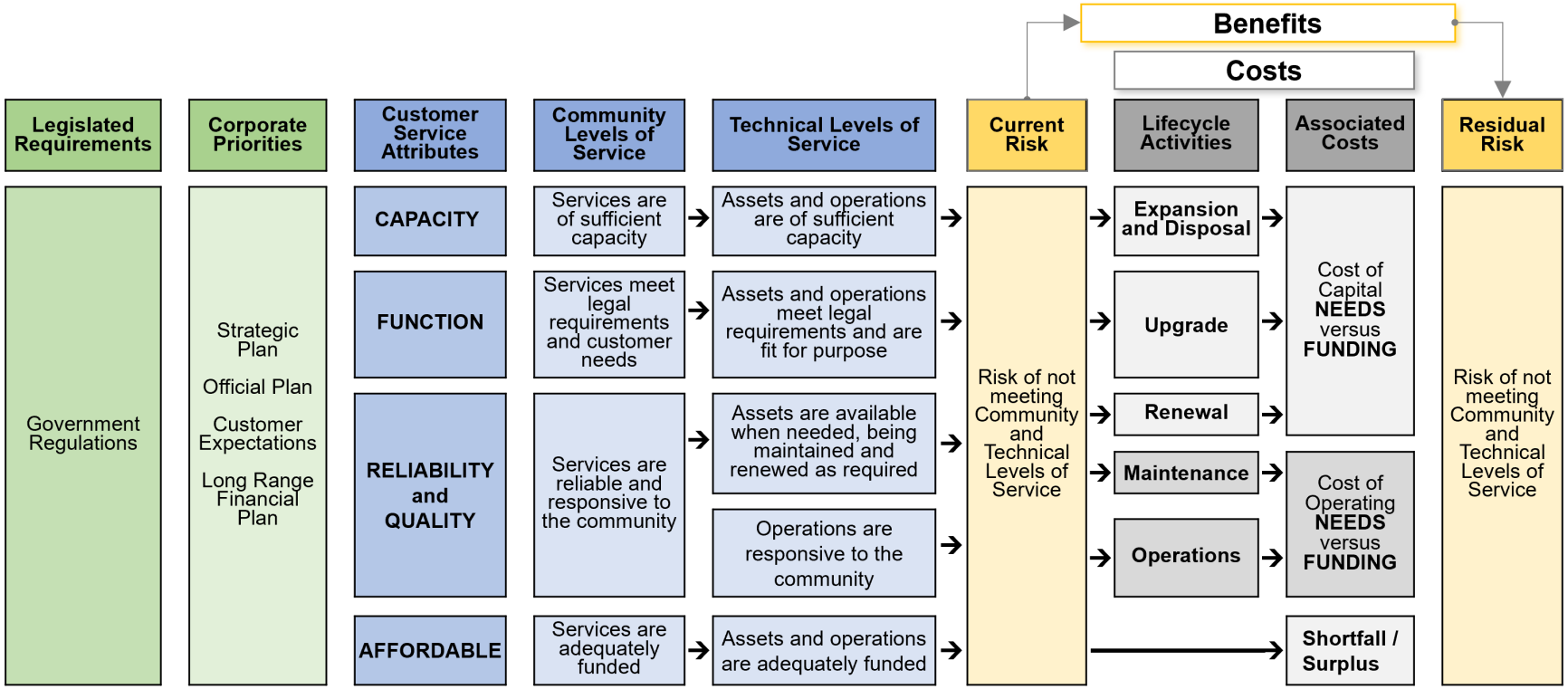
- **Reliability & Quality LOS** drive assessment of renewal, maintenance and operations (and programming) needs
- **Affordability LOS** drive assessment of financial sustainability needs.

The risks of failing to achieve Customer and Technical LOS commitments are assessed, and lifecycle activities are prioritized to address those risks. Lifecycle activities may include expansion, upgrade, renewal, maintenance or operational activities, depending on the category of LOS to be addressed. In some cases, lifecycle activities address several Customer and Technical LOS. For example, a project on a runway may simultaniously increase capacity, make upgrades to meet regulatory requirements, and renew existing pavement. The nature of the lifecycle activity determines whether it should be funded as capital or operating, as well as eligible funding sources. As shown in Figure 3-1, even after the lifecycle intervention, some residual risk may remain.

3.6 Customer Research and Expectations

Customer input will be sought as part of the Alignment and Analytics priorities identified in the 2023-2026 Strategic Plan. This includes public opinion, stakeholder group surveys and municipal partner input to collect information about user service patterns, behaviours and preferences today and potentially in the future. This customer research, along with demographic analysis, will provide insight into customer needs and perceptions related to demand and areas of improvement. This information will be used to inform the 2025 AM Plan's proposed LOS.

Figure 3-1 Levels of Service Framework



3.7 Current Performance

The current performance related to capacity and function are not provided in this AM Plan as an 2024 Airside Redevelopment Study is currently under development that will define the demand for expanded services, as well as the required capacity and assets to support those services.

The reliability service attribute indicates whether assets are fit for service. The Technical LOS measures the percent of assets in renewal backlog, i.e. due or overdue for replacement. As shown in Table ES-1, 17.5% of the Airport's assets are in renewal backlog. These assets correspond to the assets identified as being in Very Poor condition, including Runway 11-29, Hangar 11, a front-end loader, a snowblower and some IT equipment.

Table 3-2 Current Performance – Reliability

Customer LOS Statement	Technical LOS Indicator	Current Performance	Comment
Assets are fit for service	% assets in renewal backlog, i.e. due or overdue for replacement	**17.5%**	Less is better

The O.Reg. requires the organization to forecast the cost of maintaining the current performance over the next 10 years, in othder words, to prevent the renewal backlog from growing.

The affordability service attribute will be addressed in the Financial Summary of the AM Plan.

3.8 Factors Impacting Levels of Service Performance

External trends and issues affecting expected levels of services or the Airport's ability to meet the defined levels of services include the following.

- Population and employment changes (e.g., growth, demographics), which will impact infrastructure use.
- Changes in expectations for patterns of use from the public, which will impact infrastructure use and revenue for services.
- Potential changes in technology or methods, which may replace obsolete equipment, provide longer asset life, and/or achieve higher quality and greater efficiencies.
- Potential changes to the cost of input variables (e.g., cost of power, fuel), which will impact costs to deliver the services.
- Infrastructure failing prematurely due to environmental factors and/or construction practices requiring renewal much earlier than the expected life of the asset.
- Availability of external funding (e.g. federal and provincial infrastructure programs), which may affect the infrastructure improvement activities that can be undertaken.
- Unexpected downloading of services by more senior levels of government.
- Popularity of sustainability initiatives and "greening" trends (e.g. LEEDs).
- Climate change, including changing storm events and patterns (e.g., higher frequency storms occurring more regularly), which will impact the infrastructure.
- Potential changes in Federal or Provincial legislation.

4 ASSET MANAGEMENT STRATEGY

The Asset Management Strategy section of the AM Plan describes the framework that the Airport uses to identify critical assets and quantify risk to enable prioritization of lifecycle activities, and summarizes the asset management strategies (i.e., planned actions) that will enable the assets to maintain the current levels of service in a sustainable way, while managing risk, at the lowest lifecycle cost.

4.1 Overview of AM Strategy Development

Monitoring the Airport's performance against defined levels of service helps to improve the Airport's service delivery by identifying under-performance so that it can be addressed. Assessing the risks associated with failing to achieve the defined Costomer and Technical LOS helps to priotize lifecycle activities and minimize residual risks.

To achieve its program objectives, the Airport builds new infrastructure assets to meet growth needs and manages existing assets to meet reliability needs – all with limited funds. Asset lifecycle management strategies are planned actions that enable assets to provide the defined levels of service in a sustainable way, while managing risk, at the lowest lifecycle cost.

Asset lifecycle management strategies are typically organized into the following categories:

- **Non-asset solutions** – actions or policies that can lower costs or extend asset life (e.g., better integrated infrastructure planning and master planning, demand management, insurance, process optimization, managed failures).
- **Growth or expansion** – activities to provide a new asset that did not exist previously (e.g. a parking lot) or an expansion to an existing (e.g., widening a road, lengthening a runway).
- **Upgrade or enhancement** – activities to provide a higher level of service capability from an existing asset to achieve better fit for purpose (e.g., increasing the structural capacity of current airside pavement) or to meet regulatory or corporate requirements.
- **Renewal** – activities that return the original service capability of an asset (e.g. replacing the roof of a building or replacing an existing snow plow with a new one).
- **Maintenance** – activities to retain asset condition to enable it to provide service for its planned life (e.g. pavement patching, building and structure repairs), including regularly scheduled inspection and maintenance, or more significant repair and activities associated with unexpected events.
- **Operations** – regular activities to provide services (e.g., using / running a piece of equipment, cleaning, provision of energy)
- **Disposal** – activities associated with disposing of an asset once it has reached the end of its useful life or is otherwise no longer needed by the municipality.

The Airport assesses the costs of potential lifecycle activities to determine the lowest lifecycle cost strategy to manage each asset type. The sum of all asset lifecycle management strategies informs the minimum cost to sustain each asset type, for each service area. Failing to take care of assets can impact the total cost of ownership for that asset and can also have other impacts such as causing damage to other infrastructure or causing interruption to service delivery.

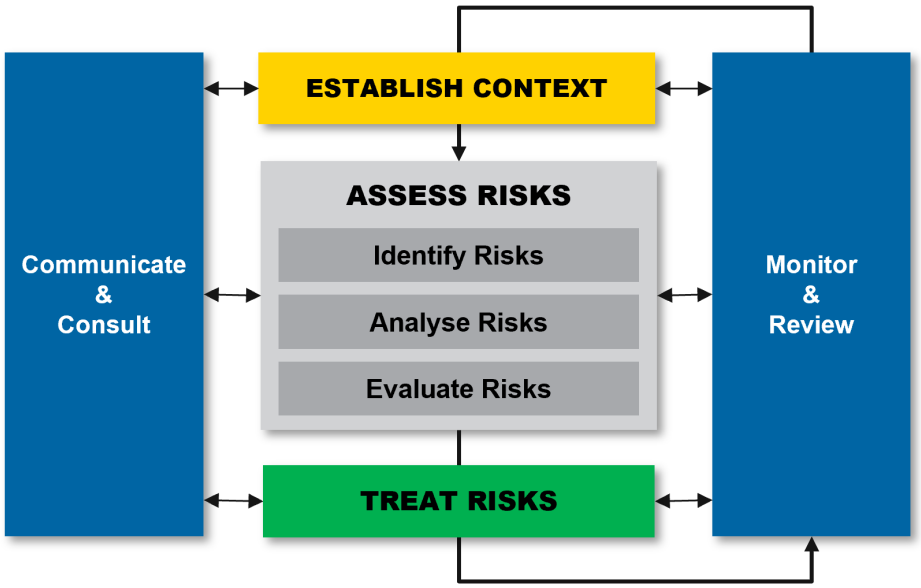
4.2 Risk Assessment

4.2.1 Risk Management Framework

Risk management refers to the management of uncertainty on business objectives. For this AM Plan, risk management was guided by the ISO 31000 Standard for Risk Management, which provides globally accepted principles and guidelines for risk assessment.

The ISO 31000 Risk Management Standard outlines the steps involved in Risk Management as shown in Figure 4-1.

Figure 4-1 ISO 31000 Risk Management Process



- **Establish Context** – the environment in which the Airport seeks to define and achieve its objectives
- **Identify Risks** – that could affect achievement of Airport's LOS
- **Analyze Risks** – estimate the level of a risk by approximating likelihood and consequence of occurrence
- **Evaluate Risks** – determine whether or not a specified level of risk is acceptable or tolerable
- **Treat Risks** – select and implement one or more treatment options
- **Monitor and Review** – determine the current status and whether or not required LOS are being achieved
- **Communicate and Consult** – an iterative two-way dialogue between the Airport and its stakeholders throughout the risk management process.

4.2.2 Risk Context

For this AM Plan, the Airport defines the risk as the failure to maintain current LOS.

4.2.3 Risk Assessment

Table 4-1, shown below, presents the **Risk Evaluation Matrix Framework** that depicts the risk exposure, based on the likelihood of occurrence and overall consequence rating for each risk.

Table 4-1 Risk Evaluation Matrix Framework

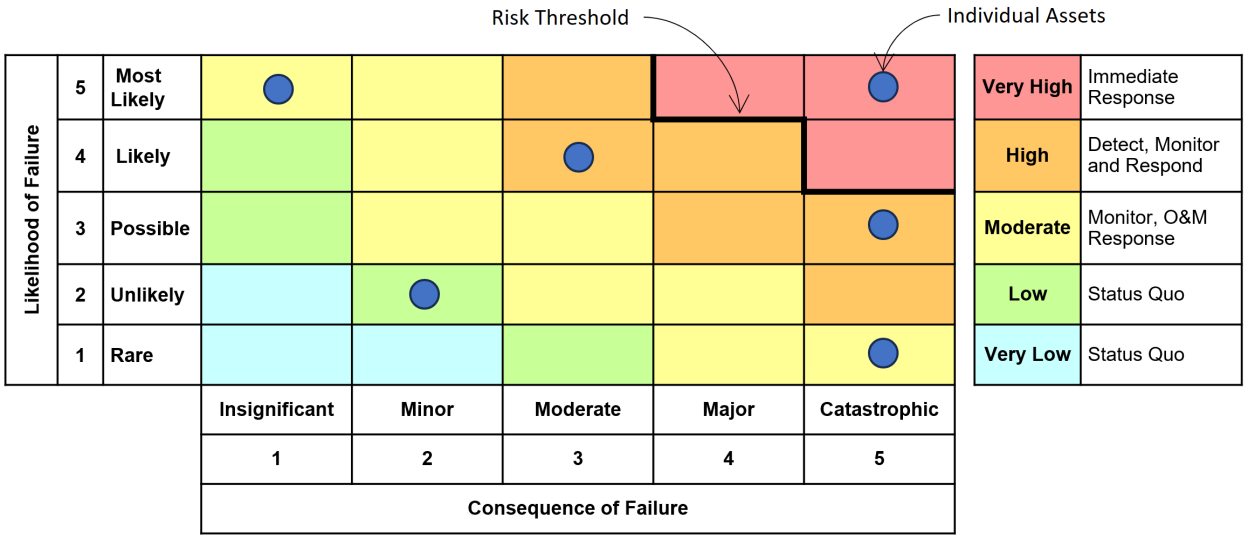


Table 4-2, on the following page, presents the **Consequence Rating Criteria** used to determine consequence ratings, which details the ratings for the severity of consequences of risks. For each risk, consequences for the following five consequence categories are considered: service delivery, economic, environmental, health and safety, and social. An overall consequence rating is calculated by taking the highest consequence rating from across the five consequence categories.

Table 4-3, two pages ahead, presents the **Probability (Likelihood) Rating Criteria** used to determine the likelihood of occurrence (i.e., the chance of a significant single event or ongoing/cumulative occurrence). The likelihood of occurrence can be defined for each of the three service attributes: capacity, function, reliability but is considered for reliability only in this AM Plan as a master plan is currently under development that will define the demand for and capacity of the services and supporting assets and the suitability of the services, operations and assets for stakeholders.

Table 4-2 Consequence Rating Criteria

CoF Score	Consequence (Impacts) of Failure				
	Service Delivery	Economic	Health and Safety	Environmental	Social
1	No impact to services or small number of customers experience disruption or impact to non-essential service.	Damages, losses, or fines of under $10,000	No obvious potential for injury or affects to health.	Asset degradation/failure has negligible impact on environment, emissions, and pollution. Impact fully reversible within 1 week.	Event only of interest to individuals. No community concern.
2	Localized service disruption or impact to non-essential services.	Damages, losses, or fines of $10,000-$200,000	Potential for minor injury or affects to health of an individual.	Asset degradation/failure has minor impact to the environment including potential for increased emissions or pollution. Prosecution possible. Impact fully reversible within 3 months.	Minor community interest. Local media report.
3	Significant localized disruption or impact to non-essential services and/or localized disruption to essential services.	Damages, losses, or fines of $200,000-$2,000,000	Potential for serious injury or affects to health of one or more individuals with a possibility of short term disability or hospitalization.	Asset degradation/failure has significant short-term impact to the environment including a likely increase of emissions or pollution. Prosecution probably. Impact fully reversible within 1 year.	There will likely be moderate local media exposure which may last several days. Public Community Discussion. Broad adverse media coverage.
4	Widespread short-term disruption or localized long-term disruption of essential services.	Damages, losses, or fines of $2,000,000-$10,000,000	Potential for serious injury or affects to health of one or more individuals with a possibility of loss of a life.	Asset degradation/failure poses risk of environmental contamination and/or has significant long-term impact. Likely a substantial increase to emissions or pollution. Prosecution expected. Impact fully reversible within 5 years.	There will likely be significant, negative, local or provincial media exposure which may last several days. Loss of confidence in the Commission. National publicity. Public agitation for action.
5	Airport-wide or long-term disruption of essential services.	Damages, losses, or fines of over $10,000,000	Potential for death or multiple deaths with probable permanent damage.	Asset degradation/failure poses significant risk to environment including a major long-term impact. Likely to result in contamination. May become of Provincial or Federal importance. Prosecution. Long term study. Impact not fully reversible.	There will likely be significant, negative, national or international media exposure lasting several days or weeks. Public investigation. International coverage. Management changes demanded.

Table 4-3 Probability (Likelihood) Rating Criteria

PoF Score	Probability (Likelihood) of Failure				
	Frequency	Probability	Capacity	Function	Reliability
1	Within 10 to 20 years	0% to 10%	Demand corresponds well with actual capacity and no operational problems experienced. Meets current and future capacity needs within planning horizon.	The infrastructure in the system or network meets all service delivery needs (i.e., health, safety, security, legislative, etc.) in a fully efficient and effective manner.	Asset is physically sound and is performing its function as originally intended. Asset is new or at the beginning of its service life. (< 25% Life Consumed)
2	Within 6 to 10 years	11% to 30%	Demand is within actual capacity and occasional operational problems experienced.	The infrastructure in the system or network meets service delivery needs (i.e., health, safety, security, legislative, etc.) in an acceptable manner.	Asset is physically sound and is performing its function as originally intended. Typically, asset has been used for some time but is within mid-stage of its expected life. (25% < Life Consumed <=50%)
3	Within 3 to 5 years	31% to 60%	Demand is approaching actual capacity and/or operational problems occur frequently. Meets current capacity needs but not future without modifications.	The infrastructure in the system or network meets service delivery needs (i.e., health, safety, security, legislative, etc.) with some inefficiencies and ineffectiveness present	Asset is showing signs of deterioration and is performing at a lower level than originally intended. (50% < Life Consumed <=75%)
4	Within 2 years	61% to 80%	Demand exceeds actual capacity and/or significant operational problems are evident.	The infrastructure in the system or network has a limited ability to meet service delivery needs (i.e., health, safety, security, legislative, etc.).	Asset is showing significant signs of deterioration and is performing to a much lower level than originally intended. (75% < Life Consumed <=100%)
5	Within 1 year	81% to 100%	Demand exceeds actual capacity and/or operational problems are serious and ongoing. Does not meet current capacity requirements.	The infrastructure in the system or network is seriously deficient and does not meet service delivery needs (i.e., health, safety, security, legislative, etc.) and is neither efficient nor effective.	Asset is physically unsound and/or not performing as originally intended. Asset has reached end of life and failure is imminent. (> 100% Life Consumed)

Table 4-4 shows the Consequence of Failure (CoF) rating and service life used to evaluate risks and subsequently determine asset renewal activity needs.

Table 4-4 Consequence Rating (CoF) and Service Life

Asset Class	Asset Sub-Class	Asset Type	Asset Sub-Type	CoF
Airside	Aircraft Runways	Pavement	RW Pavement	5
			Rarely Used Pavement	4
			Closed Pavement	1
		Signage	TA Pavement	5
		Pavement Paint	TA Tie-Down	5
	Aircraft Taxiways, Apron	Pavement	AS Signage	5
			Rarely Used Pavement	4
			Closed Pavement	1
		Aircraft Tie-Down Pad	AS Pavement Paint	5
		Pavement Paint	AFL-8	5
	Airfield Lighting	Field Electric Centre Structure	AFL-10	5
		Field Electric Centre & Controls	AFL-15	5
		Underground Cables & Conduits	AFL-20	5
		Lighting		5
Groundside	Roads	Pavement	GS Pavement	3
		Lighting	Road Lighting	3
		Pavement Paint	GS Pavement Paint	3
	Parking	Curb & Gutter	GS C&G	3
		Lighting	Parking Lot Lighting	3
	Facilities	Terminal	Building	5
			Furniture	3
			Flagpoles	3
			Monuments	3
			Flower Pots	2
			Outdoor Furniture	2
		Hangar 11	Building	2
		Maintenance Garage	Building	3
		Fuel Farm	Concrete Pads	4
			Fuel System	4
Site Servicing	Electrical	Underground Service Cable		5
	Fencing	Gate and Control System		5
		Barbed Wire Fencing		5
		Fencing		5
	Stormwater Mgmt	Storm sewers		4
		CBMH - catchbasins		4
		DIMH		4
		Culverts		4
		Ditches		4
		Inlets & Headwalls		4
		Oil-Grit Separator		4
	Signage	Rules and Regulation		4
		Bylaw Sign		3

Asset Class	Asset Sub-Class	Asset Type	Asset Sub-Type	CoF
Site Servicing		Information Sign		2
		Other		2
	Wildlife Mgmt	Culverts		4
	Wastewater	Sanitary mains		4
		MH		3
	Water	Watermains		4
		Hydrants		4
		Meter Chamber		3
Vehicles & Equip	Equipment	Loader Plow		4
		Mower		4
		De-icing Spreader		4
		Mower		4
		Plow Blade		4
		Decelerometer		3
		Line painter		3
		Loader		3
		Power Washer		3
		Range Finder		3
		Snowblower		3
	Maintenance Vehicles	Loader		4
		Plow Truck		4
		Tractor		4
		Pick-up Truck		3
		Sweeper		3
		Utility Vehicle		3
IT Equipment	Servers	Servers		4
	Devices and Printers	AP		3
		Lenovo Thinkpad Computers		3
		Miscellaneous Computer Equip		2
		Printer		2
	Security Technology	Access Keypad		5
		Security Software		5
		Cameras		4
	Communications Equip	AV System		4
		Radios		3
		Handheld Radios		3

Table 4-5 summarizes the Airport's Risk Evaluation Matrix, based on the likelihood of occurrence and overall consequence rating for each risk, for all Airport assets. Note that, although 17% of the Airport's assets are in Very Poor condition, only 0.3% are in the Very High risk exposure category. The Very High risk exposure assets consists of the ARCAL controller for the aircraft runway.

Table 4-5 Risk Evaluation Matrix ($M)

Likelihood of Failure						
	5	$2.2	$2.4	$0.2	--	**$0.006**
	4	--	$0.0	$0.6	$0.0	--
	3	--	$0.0	$1.5	$1.2	$6.6
	2	--	$0.1	$0.3	$1.3	$8.3
	1	--	$0.0	$2.1	$0.4	$0.3
		1	2	3	4	5
		Consequence of Failure				

Risk Exposure	CRV* ($M)	CRV* (%)
Very High	$0.006	0.02%
High	$8.6	31.2%
Moderate	$16.4	59.3%
Low	$2.6	9.4%
Very Low	$0.0	0.0%
Total	**$27.7**	**100.0%**

* CRV = Current Replacement Value

4.3 Asset Management Strategies

The Airport uses its understanding of current service delivery gaps and potential future gaps to inform the timing, location and amount of needed investments in infrastructure assets. The Airport aims to provide sufficient service capacity to meet demand and manages the condition and renewal of assets to sustain defined service levels, including meeting legislated and other corporate requirements.

4.3.1 Growth and Expansion Strategies

The Airport's approaches to accommodate growth and expansion needs will be identified in the 2024 Airside Redevelopment Study, which will define the demand for and capacity of the services and supporting assets.

4.3.2 Upgrade and Enhancement Strategies

Upgrade and enhancement activities provide a higher level of service capability from an existing asset to achieve a better fit for purpose (e.g., increasing the structural capacity of current airside pavement) or to meet regulatory or corporate requirements such as for health, safety, and environmental protection.

The 2024 Airside Redevelopment Study includes upgrade and enhancement strategies needed to support the proposed redevelopment. In addition, the Airport may produce functional needs plans that apply across the organization such as accessibility and energy conservation plans, which will provide upgrade and enhancement needs forecasts. As it is common for growth and upgrade strategies to be undertaken simultaneously, these lifecycle strategies are often reported together.

4.3.3 Renewal Strategies

All assets physically deteriorate at different rates to eventual failure and loss of ability to deliver the required levels of service. The Airport invests in condition assessments to gain the critical knowledge needed to understand where the assets are in their lifecycles and identify performance gaps.

For each identified renewal performance gap, technically feasible lifecycle options are assessed to determine the lowest cost solution to adequately address the gap. For each asset type, the Airport develops an asset renewal strategy that identifies the frequency and cost of activities that provide the defined level of service, at the lowest lifecycle cost. The renewal strategies are applied to the asset portfolio over time to determine the program of renewal activities and the amount that must be invested in the Airport's asset portfolio to sustain current service levels.

For some asset types, such as most fleet and information technology assets, the renewal strategy is very simple – replace the asset at the end of its useful life. For other asset types, such as a facility or pavement, the renewal strategy is much more complicated. For a facility, there are many thousands of components, some of which may be rehabilitated or replaced numerous times throughout the life of the facility. For pavement, there are numerous treatment types and they may each only be applied a limited number of times throughout the life of the pavement, and only under certain conditions.

Over time, as the Airport refines the asset management strategies through optimization analyses, the tracking of condition against targets and the application of renewal activities to meet defined levels of service becomes more routine.

4.3.4 Operations and Maintenance Strategies

The distinction between renewals (which are capital works) and maintenance (which is an operational expense) is set by accounting policies and standard operating procedures. Maintenance ensures the asset continues to deliver defined levels of services, while renewals can extend the asset's useful life. Renewals and maintenance are strongly linked; maintenance strategies can hasten or delay the need for renewals, and, if renewals are deferred, maintenance needs will often increase.

Asset operations and maintenance requirements and required resources are assessed and prioritized based on:

- Carrying out legislated operations and maintenance activities to ensure safety and environmental sustainability in accordance with appropriate regulations.
- Conducting routine and preventative maintenance activities to ensure preservation of existing assets.
- Analysis of current operations and maintenance contracts and known historical costs of delivering defined levels of services to forecast future operations and maintenance costs. For example, in some cases operations and maintenance costs increase at the rate of inflation, and in other cases such as energy and oil for pavement, costs have increased significantly more over time than the overall rate of inflation.
- Assessing consequential operations and maintenance requirements of significant new or upgraded infrastructure planned for the asset portfolio.

Any asset portfolio growth will place significant pressure on the capacity of existing operations and maintenance. Consequential operational expenditure is the operations and maintenance cost

associated with new and upgraded assets. For example, for a new facility, the costs of electricity, natural gas and routine maintenance all contribute to the consequential operational expenditure associated with that new asset. These costs will be incurred by the Airport into the future for as long as the facility is in use. For most assets, a good estimate of the consequential operational expenditure required to operate and maintain the new assets is simply the existing operations and maintenance cost multiplied by the growth factor.

5 FINANCING STRATEGY

5.1 Introduction

The purpose of a financial strategy is to provide a path to financial sustainability.

Financial sustainability involves managing service levels, infrastructure and financial assets in both the short and the long term. An organization is considered financially sustainable if:

- Its revenues are commensurate with its level of service aspirations
- It can adjust its capital plan, operating programs and service levels in response to changes in economic conditions or revenues
- It can keep its infrastructure in a state of good repair and replace it at the right time
- It can accommodate growth without unacceptable rate or debt increases.

Potential risks to achieving municipal financial sustainability include:

- A mismatch between level of service aspirations and fiscal capacity
- Uncertainty in the future cost of needed infrastructure investments
- Unforeseen shocks to revenue, such as an economic downturn or a reduction in revenue
- Demand that does not materialize as expected.

5.2 Capital Needs Forecast

Capital Needs Forecast to Service Growth and Upgrade

To meet the demand for expanded services, the Airport constructs new and expands the capacity of the asset portfolio, in addition to implementing non-asset strategies. To meet demand for functional improvements to services, the Airport upgrades the functionality of the asset portfolio. The needs to accommodate growth and upgrade are not known at this time but will be identified in the 2024 Airside Redevelopment Study.

Capital Needs Forecast to Service Renewal

To manage asset condition and address potential asset and associated service reliability gaps, the Airport continuously renews the asset portfolio. In accordance with O.Reg. 588/17 requirements, Figure 5-1 shows the capital renewal needs forecast to **maintain current LOS** (i.e., current % of assets in very poor condition), for each of the next 10 years (coloured bars) and on average for the next 10 years (dashed black line). These forecasts are based on a range of methods including industry standard physical condition assessments and needs forecasts, staff-report condition assessments and needs forecasts, install date and estimated useful life, and annuities (replacement cost divided by the estimated useful life). For reference, the solid red line shows the average funding available for the past 5 years (2020 to 2024) as $0.4 million/year.

Figure 5-1 Renewal Needs and Funding – Maintain Current LOS

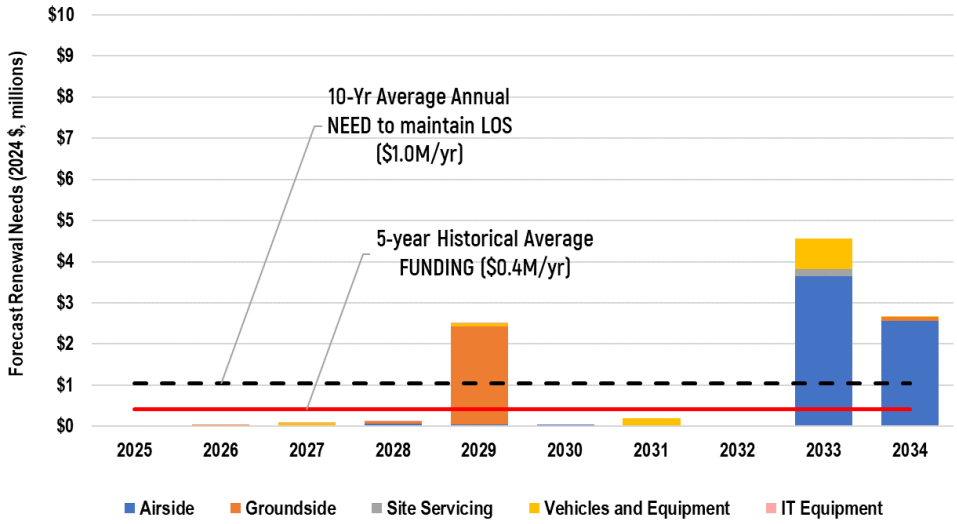


Figure 5-2 shows the forecast condition distribution associated with the funding scenario depicted in Figure 5-1. This scenario was designed to maintain the current LOS, i.e. the renewal backlog. In 2024 the renewal backlog was 17.5%. The backlog grows to 20.3% by 2034; however, through the period 2025-2034; the annual renewal backlog averages 17.3%.

Figure 5-2 Condition Forecast – Maintain Current LOS Scenario

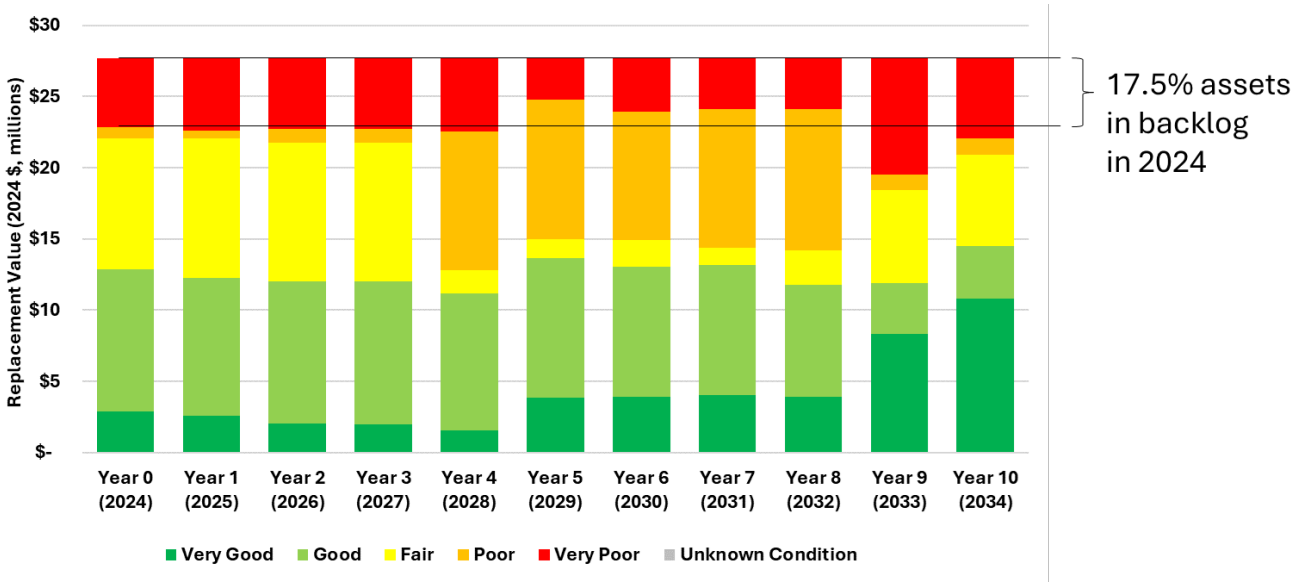


Figure 5-3 shows the capital renewal needs forecast to address all outstanding needs for each of the next 10 years (coloured bars), the average for the next 10 years (dashed black line), and the average historical renewal funding of $0.4 million/year (solid red line). The Figure shows that $1.6

million/year would be needed to address all outstanding needs. In figure 5-4, the condition forecast shows that this level of funding would eliminate the renewal backlog.

Figure 5-3 Renewal Needs and Funding – Eliminate Backlog

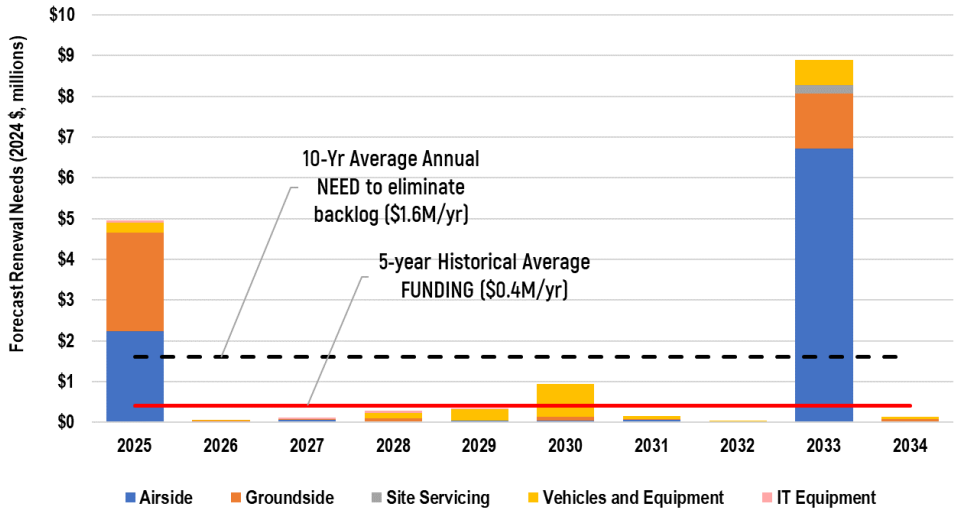
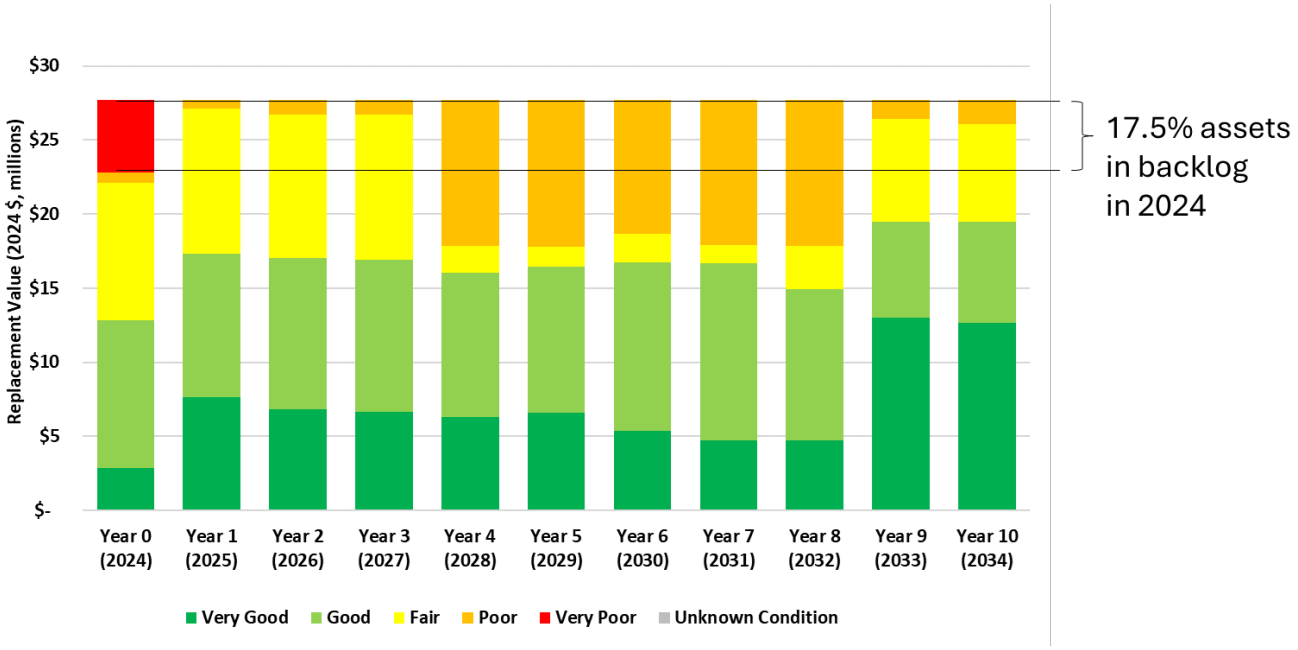


Figure 5-4 Condition Forecast – Eliminate Backlog Scenario

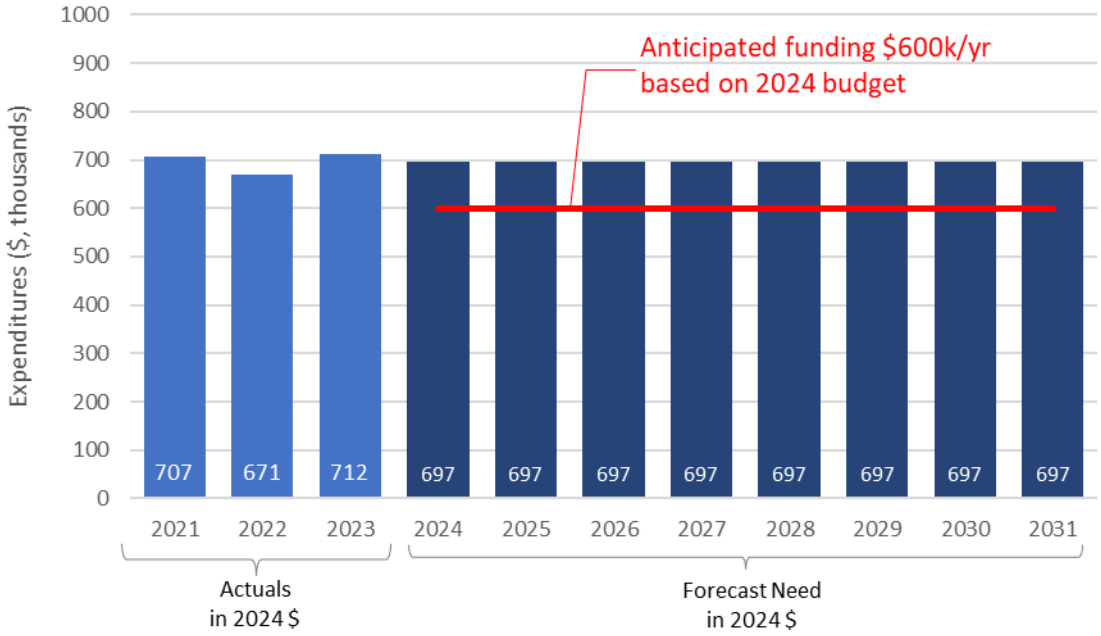


5.3 Operating Needs Forecast

To deliver the current LOS, the Airport undertakes regularly programmed activities, including operating and maintaining the assets and providing services. Any asset portfolio growth will place pressure on the capacity of existing operations and maintenance needs; however, growth and upgrade needs for the next 10 years are not defined at this time.

Figure 5-3 shows the actual expenditures for the years 2021-2023, inflated to 2024 $. The forecast needs for future years (2024-2025) is estimated at $697k/year, which is the average annual expenditure for the years 2021-2023. For comparison, the figure shows the 2024 budget of $600k/year. This

Figure 5-5 Annual Operating Needs Forecast*



** Amounts include only costs related to operations and maintenance of assets, not full operating budget.*

5.4 Funding Sources for Asset Lifecycle Strategies

The above sections provide a summary of the forecasted needs to renew, operate and maintain Airport service levels and assets. The Airport's ability to deliver on its AM Plan depends on its financial strategy. Financial sustainability requires long-term planning so that the necessary steps can be taken in the near-term to manage long-term financial risks.

A number of revenue sources are available to fund the capital and operating needs:

- User fees
- Financial support from the cities of Niagara Falls and St. Catharines, and the town of Niagara-on-the-Lake based on population
- Grants from the Federal Government (only with scheduled service).

Note that the Airport is not permitted to fund using debt or hold reserves.

The Airport is currently developing a strategy to determine how best to fund each of the asset lifecycle needs, across each of the asset classes. Alternative procurement and funding models are also being considered.

6 PLAN IMPROVEMENT AND MONITORING

6.1 Data Confidence

Data for asset management is created and collected through documented data specifications and protocols in phases that correspond to the general lifecycle of the assets:

- **Inventory Data** is collected during the asset acquisition / creation phase and provides identification, location and description data. Examples include asset ID, description, purchase year, installation year, in-service date, purchase cost, make, model, serial number, physical attributes (e.g. length, material, power rating), class, and parent asset.
- **AM Planning Data** is collected throughout the lifecycle of the assets and provides the base data for analysis of asset condition / maintenance, utilization / operations, and performance. Examples include updated demand / utilization / access restrictions data, updated condition data, updated criticality, risk and resilience data, physical works plans / achievements and related estimated / actual costs.
- **AM Analysis Data** is developed to report AM performance and make decisions to minimize impacts of failure to meet performance targets. For example to determine customer service performance, technical assets performance, and costs of asset ownership (lifecycle needs).

The quality of AM data can include its completeness and accuracy, and can be dictated by what it is based upon. The grades for evaluating data confidence are shown below.

Table 6-1 Data Confidence Grading

Grade	Quantity, Size, Install Year, Service Life	Condition	Replacement Value	Growth / Upgrade Needs Forecast	Renewal Needs Forecast
	% complete & accurate	Based upon	Based upon	Based upon	Based upon
Very High (VH)	90% to 100%	current industry standard condition assessment	current tender documents, quotes	historic budget actuals and current master plan forecast, with costs	current industry standard condition assessments & needs forecast, with costs
High (H)	80% to 90%	2+ year old industry standard condition assessment	2+ year old tender documents, quotes	historic budget actuals and 2+ year old master plan forecast, with costs	2+ year old industry standard condition assessments & needs forecast, with costs
Moderate (M)	70% to 80%	staff-reported condition	staff-reported costs	historic budget actuals and master plan forecast, with staff forecast costs	staff-reported condition assessment and needs forcast, with costs
Low (L)	50% to 70%	install date and useful life	inflated historical costs	population growth forecast	Needs forecast from install date & useful life
Very Low (VL)	0% to 50%	Unknown	Unknown	Unknown	Unknown

In compiling this AM Plan, a review of the asset registries is was performed. The review looked at the completeness and accuracy of the asset registries. The following table provides the assessment of the data used for meaningful asset management planning.

Table 6-2 AM Plan Data Confidence Grades

Asset Class	Asset Sub-Class	State of Infrastructure					Needs Forecast	
		Quantity & Size	Install Year	Service Life	Condition	Replacement Costs	Growth & Upgrade	Renewal
Airside	Aircraft Runways	VH	M	H	H	M	N/A	H
	Aircraft Taxiways, Apron	VH	M	H	H	M	N/A	H
	Airfield Lighting	H	H	H	M	M	N/A	M
Groundside	Roads	H	M	H	M	M	N/A	M
	Parking	H	M	H	M	M	N/A	M
	Facilities*	M	M	M	M	M	N/A	L
	Fuel Farm	H	H	H	M	M	N/A	M
Site Servicing	Stormwater Management	M	M	H	M	M	N/A	M
	Water	M	M	H	L	M	N/A	M
	Wastewater	M	M	H	L	M	N/A	M
	Wildlife Management	H	H	H	H	M	N/A	M
	Signage	H	M	H	L	H	N/A	M
	Electrical	M	M	H	L	M	N/A	M
	Fencing	M	M	H	L	M	N/A	M
Vehicles and Equipment	Vehicles	VH	H	H	H	H	N/A	H
	Equipment	VH	H	H	H	M	N/A	H
IT Equipment	Servers	VH	H	H	M	M	N/A	M
	Devices and Printers	VH	H	H	M	M	N/A	M
	Security Technology	VH	H	H	M	M	N/A	M
	Communication Equip	H	H	H	M	M	N/A	M

* Facility inventories were generally available only at the building level. Information on building systems and components would enable better needs forecasting.

6.2 Improvement Plan

The next steps resulting from this AM Plan to improve asset management practices are:

- Determine proposed levels of service for reporting in the Proposed LOS AM Plan required by O.Reg. 588/17 for approval by July 1, 2025.
- Complete the 2024 Airside Redevelopment Study and associated business case and determine Growth and Upgrade Needs Forecasts. This is an important step as it may influence the criticality of assets within the asset portfolio and the timing of renewal activities.
- Establish the future use and lifecycle activities for Hangar 11.

- Improve the asset State of Infrastructure database by conducting cyclical industry standard condition assessments, giving priority to high consequence of failure (CoF) assets. In particular, conduct condition assessments on the Terminal and Maintenance Garage. Develop inventories of building systems and components as part of the condition assessment.
- Improve the Renewal Needs Forecast in conjunction with the condition assessments.
- Establish a master asset inventory to support AM activities. Align the TCA register with AM asset register, or consolidate the two inventories. Establish processes to update the asset register(s) when assets are acquired, replaced or eliminated.
- Explore options for implementing technologies for work order management and asset investment planning. Consider the possibility of using applications in place at one of the three owner municipalities.

6.3 AM Plan Monitoring and Update

O.Reg. 588/17 requires that AM Plans be updated by July 1, 2025 to report proposed LOS for the subsequent 10 years, along with the cost of sustaining the proposed LOS. Thereafter, the O.Reg. requires that progress implementing the AM Plan be reported to municipal Councils annually by July 1. In addition, the O.Reg. requires AM Plans to be updated at least every 5 years.